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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,835

09/13/2006

Udo Van Steven-Daal

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24737 7590 10/03/2007

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

TANINGCO, ALEXANDER H

ART UNIT

PAPER NUMBER

2882

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

T/H

<b>Office Action Summary</b>	Application No. 10/598,835	Applicant(s) VAN STEVEN-DAAL ET AL.	
	Examiner Alexander H. Taningco	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/08/2007</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Information Disclosure Statement*

Receipt of the Information Disclosure Statement (IDS) with copies of the reference cited therein, was received on 01/08/2007. An initialized copy of the IDS is enclosed with this office action.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneider et al. (Coherent Scatter Computed Tomography Applying a Fan-Beam Geometry).

With regards to claims 1, 6, 9, and 10, Schneider et al. disclose a method of reconstructing coherent scatter computed tomography (CSCT) data of an object of interest, the method comprising the steps of: acquiring attenuation data of the object of interest from primary radiation transmitted through the object of interest (pg 754 Line 5); performing a beam hardening compensation of scatter radiation data on the basis of the acquired attenuation data (pg 754 Line 5-6); wherein the scatter radiation data is based on scatter radiation scattered from the object of interest (pg 754 Abs.); and

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reconstructing the coherent scatter computed tomography data by using the compensated scatter radiation data (Abs.; pg 754 Line 11).

**Note:** Apparatus claims must be structurally distinguished from the prior art.

Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Apparatus claims cover what a device is, not what a device does.

*Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d

Furthermore, a data processing device and a computer program is necessarily taught to implement the recited limitations above. It is obvious to one ordinary skill in the art to recognize prior art to comprise a computer program or data processing device to implement said limitations.

**With regards to claims 2 and 7**, Schneider et al. disclose a method wherein a compensating of a beam hardening effect is performed on the basis of an energy shift determined on the basis of an equivalent object; wherein the energy shift occurring with the equivalent object caused by the beam hardening effect is known (pg 757 Line 12 and 20-26; Fig. 2).

**With regards to claim 3**, Schneider et al. disclose a method further comprising the steps of: determining a mean attenuation caused by the object of interest on the basis of the attenuation data (pg 757 Line 29); determining an equivalent thickness of a pre-selected first material on the basis of the mean attenuation (pg 757 Line 12 and 20-26; Fig. 2); determining an energy shift on the basis of the equivalent thickness of the

pre-selected first material; and compensating the scatter radiation data by using the energy shift (pg 757 Lines 34-35).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al. (Coherent Scatter Computed Tomography Applying a Fan-Beam Geometry) in view of Schneider et al. (Coherent Scatter Computed Tomography Applying a Fan-Beam Geometry).

**With regards to claims 5 and 8**, Schneider et al. disclose a method wherein on the basis of the attenuation data (pg 754 Line 6), a second material is determined which is located on a path of a scattered photon of the scatter radiation in the object of interest (pg 754 Lines 8-10); and wherein the mean energy is used for the reconstruction (pg. 758 Lines 28-29). Schneider et al. fail to explicitly teach a method further comprising: wherein an absorption spectrum of the second material is used for determining a mean energy of the scattered photon. Schneider et al. teach material discrimination is limited to differences in the total attenuation coefficient (pg 754 Line 8). Schneider et al. teach scattering angle for a given momentum transfer depends on the energy of the photon the signal structure measured on the detector is a function of superimposed scatter

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projections for the different energies weighted with the intensity and the energy dependent attenuation (pg 757 Line 21-22). Schneider et al. further teach using an approximate value for the mean energy of the detected spectrum for reconstruction (pg 757 Line 29) and reconstruction procedure will use a mean energy value depending on the traversed object thickness and a more realistic spectral intensity distribution function (pg 757 Lines 34-35). It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the invention of Schneider et al. to include a method wherein an absorption spectrum of a material is used for determining a mean energy of a scattered photon, to reduce spectral artifacts as taught by Schneider et al. (pg 756 section 3.1 and 3.3).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent(s) are cited to further show:

Seppi (US 4,149,081)

(250/445)

- Analyzing Raleigh Scattering
- Using different peak energy settings of the source, using detectors with different efficiencies or energy response ranges
- Given a known X-ray beam spectrum, detector efficiency curve, and the density and chemical composition of an object to determine elemental cross-sections for attenuation of x-rays from an x-ray beam are the result of Raleigh scattering

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Schlomka et al. (Novel concept for coherent scatter X-ray computed tomography in medical applications)

- Coherent Scatter computed Tomography (CSCT) with a fan geometry primary beam. CSCT allows superior tissue characterization and diagnosis by reconstructing the structure function

Nisar et al. (Coherent scatter x-ray imaging of plastic/water phantoms)

- Rayleigh (elastic scattering) effect is a coherent process and depends upon the molecular structure of the sample

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander H. Taningco whose telephone number is (571) 272-8048. The examiner can normally be reached on Mon-Fri 8:00-4:30 EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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